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AUTHOR: Nedavniy, V.S. (Kiev)

TITLE: The use of analog computers for estimating the quality of setting of control systems

PERIODICAL: Avtomatyka, no. 5, 1962, 3-12

TEXT: By applying the perturbation theory to the analysis of transients in automatic control systems, the author has obtained the perturbation equations for a control system of the n-th order, which relate the changes in the transient response to the deviations of the parameters of the system components. These equations may be solved by analog computation, making it possible to determine the theoretical transients and the deviation from it of the actual system, together with the determination of changes in the transients of the follow-up system due to the changes in the velocity feedback. The block diagrams of the two analogs, required for the solution of the two above problems, are given and the procedure of the analog setting is given. The two problems were set and solved on the

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The use of analog computers ...

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analog computer MPT-9 (MPT-9). The obtained graphs of transients show that direct determination of transients for the nominal and perturbation cases have no practical meaning since, owing to the analog inaccuracy, it is impossible to distinguish the nominal transient from that obtained with a changed magnitude of feedback. At the same time the solution of the perturbation equations result in a curve which clearly shows the resulting changes in the transient process. There are 5 figures.

SUBMITTED: May 10, 1962

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